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Fighting Invasive Plants in Ohio

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Funding provided by the
Natural Areas Tax Checkoff Program
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Ohio's Most Invasive Plants

This brochure describes 10 of the most invasive non-native plant species in Ohio with information about their appearance, habitat, possible controls, and native species which can be used as alternatives in garden or wildlife plantings.

What are Invasive Plants?

Of the approximately 2,300 species of plants known to occur in the wild in Ohio, about 78 percent are native or they occurred in Ohio before the time of substantial European settlement, about 1750. The other 22 percent, more than 500 species, are not native to Ohio, having been introduced from other states or countries.

Non-native plants have been introduced for erosion control, horticulture, forage crops, medicinal use, and wildlife foods as well as by accident. Most of these species never stray far from where they are introduced (gardens, urban areas, agricultural fields), yet some become very invasive and displace native plants in woodlands, wetlands, prairies, and other natural areas.

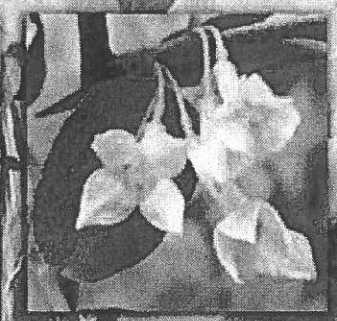
Many plants considered non-native, alien, or exotic are popular, aesthetically pleasing species. It is important to look beyond these traits – consider how these plants "act" in the landscape. Sometimes we plant invasive non-native plants for landscaping or wildlife habitat without realizing the problems they may cause when they escape into natural areas.

Without natural controls, invasive non-native plants are able to spread quickly. In some Ohio wetlands, large plots of a single invasive plant species have crowded out areas that were once filled with a wide variety of important native plants. In Ohio's woods, native spring wildflowers are quickly replaced by garlic mustard and invasive bush honeysuckle species. A diverse, healthy ecosystem is important for clean air and water, soil stability, buffer, and food and shelter for wildlife.

This brochure describes 10 of the most invasive non-native plant species in Ohio with information about their appearance, habitat, possible controls, and native species which can be used as alternatives in garden or wildlife plantings. Managing these invasive species can be challenging; be sure to obtain more detailed information before using controls, such as herbicides.

Autumn-olive

Elaeagnus umbellata



DESCRIPTION

Autumn-olive is a fast-growing shrub or small tree reaching up to 20 feet tall. Its leaves are small and oval, dark green on the upper surface and silvery below. Small coppery dots occur on stems and leaves. This shrub has light yellow, aromatic flowers and produces large quantities of small, round red fruits that are readily eaten and spread by birds.

HABITAT

Autumn-olive can survive in very poor soils because of its nitrogen-fixing root nodules. It grows in disturbed areas, roadsides, pastures, and fields throughout Ohio.

MANAGEMENT

Stems may be cut and treated with systemic herbicide. Resprouting will occur, so follow-up control is necessary. A combination of hand-pulling, digging, and herbicide treatments is usually necessary.

NATIVE ALTERNATIVES

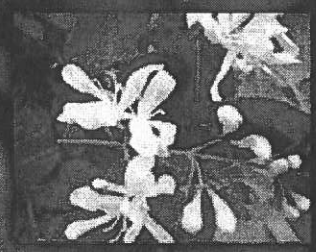
Black haw (*Viburnum prunifolium*), dogwoods (*Cornus racemosa, C. amomum*), paw-paw (*Asimina triloba*), and spicebush (*Lindera benzoin*)

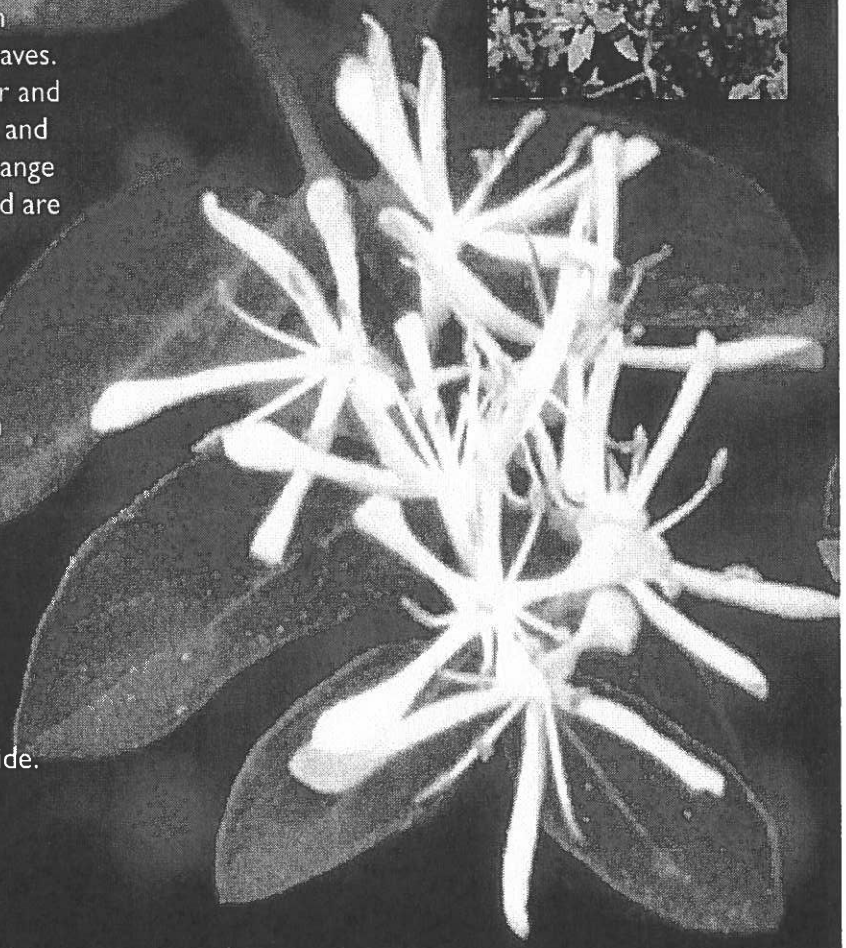
WHAT YOU CAN DO TO HELP

Be careful not to gather and transport unidentified seeds which may spread invasive plants.

Bush Honeysuckles

Lonicera maackii, L. tatarica, L. morrowii, Amur, Tatarian, Morrow honeysuckle





DESCRIPTION

These upright shrubs can grow 6-15 feet in height. Each have dark green, egg-shaped leaves. The tubular flowers are white on the Amur and the Morrow (changing to yellow with age), and pink on the Tatarian honeysuckle. Berries range from red to orange, occasionally yellow, and are eaten and dispersed by birds.

HABITAT

The bush honeysuckles inhabit abandoned fields, roadsides, woodlands, and edges of marshes. Morrow is currently a problem in northern Ohio, Amur is found mostly in southwest Ohio, and Tatarian is widespread in Ohio.

MANAGEMENT

The best control method is to cut and treat stumps with systemic herbicide. Sprouts from cut stems may be treated with a foliar application of systemic herbicide. Young shrubs are easy to pull or dig up. Be aware there is a native bush honeysuckle (*Diervilla lonicera*) in Ohio.

NATIVE ALTERNATIVES

Nine-bark (*Physocarpus opulifolius*), dogwoods (*Cornus racemosa, C. amomum*), northern arrowwood (*Viburnum dentatum*), winterberry (*Ilex verticillata*), chokeberry (*Aronia prunifolia, A. melanocarpa*), and spicebush (*Lindera benzoin*)

WHAT YOU CAN DO TO HELP

Avoid disturbance to natural areas, including clearing of native plants and dumping of yard wastes.

Buckthorns

Rhamnus frangula
Glossy (or Shining)

R. cathartica
European (or Common) buckthorn

DESCRIPTION

Buckthorns are tall shrubs or small trees that grow up to 20 feet tall. The smooth, gray to brown bark is distinctively spotted. Glossy buckthorn has shiny leaves with smooth edges. It has solitary red to purple berry-like fruits. European buckthorn has black fruits and dull green smooth leaves. Both species are abundant seed producers.

HABITAT

Glossy buckthorn usually occurs in wetlands, such as fens or bogs. European buckthorn generally occurs in a range of upland habitats, such as forests, woodland edges, fencerows, prairies, and old fields. It is not uncommon to see both species sharing the same habitat. Buckthorns are most prevalent in central and northern Ohio.

MANAGEMENT

Cutting and treating stumps or spraying foliage with a systemic herbicide is the best method of control. Buckthorns are very difficult to control due to vigorous resprouting and a large seedbank.

NATIVE ALTERNATIVES

Winterberry (*Ilex verticillata*), dogwoods (*Cornus racemosa, C. amomum*), white cedar (*Thuja occidentalis*), and Carolina buckthorn (*Rhamnus caroliniana*)

WHAT YOU CAN DO TO HELP

Plant native or non-invasive plants in your yard and garden.

Common Reed Grass

Phragmites australis

DESCRIPTION

Common reed, or Phragmites, is a grass that reaches up to 15 feet in height. The leaves are smooth, stiff and wide with coarse hollow stems. The big, plume-like flower head is grayish-purple when in fruit. It can form huge colonies and usually spreads by sprouting new shoots through underground stems (*rhizomes*).

HABITAT

Common reed grass grows in open wetland habitats and ditches. It occurs in still water areas of marshes, lake shores, riverbanks, and disturbed or polluted soils, often creating pure stands. It is possible that both native and non-native strains occur. Generally, invasive populations are non-native but it may be difficult to tell the two apart.

MANAGEMENT

Long-term management is necessary for control of this persistent plant. Cutting and treating stems with systemic herbicides is generally the most effective method. Grass-specific herbicides are recommended in areas where native plants occur.

NATIVE ALTERNATIVES

Indian grass (*Sorghastrum nutans*), big bluestem (*Andropogon gerardii*), prairie cord grass (*Spartina pectinata*), and Canada bluejoint (*Calamagrostis canadensis*)

WHAT YOU CAN DO TO HELP

Read the label! Be careful when planting seed mixes. Non-native invasive species may be in the mix.

Garlic Mustard

Alliaria petiolata

DESCRIPTION

Garlic mustard is a biennial herb; it grows as a rosette of leaves in the first year and overwinters in this form. Its lifecycle ends in the second year when it flowers and sets fruits. First-year rosettes consist of kidney-shaped, garlic-smelling leaves; the second-year plant can grow multiple stems up to 4 feet tall with triangular, sharply-toothed leaves. The small, four-petaled flowers are white and grow in clusters at the top of the stem. Garlic mustard produces large quantities of seeds which can remain viable for seven years or more.

HABITAT

This woodland plant prefers some shade but is occasionally found in full sun. It invades upland and floodplain forests, savannas, yards, streams, trails, and roadsides throughout Ohio.

MANAGEMENT

Repeated prescribed burns in oak forests may be effective. Light infestations of garlic mustard can be hand-pulled before or at flowering time. Plants should be removed from the site after pulling as the seeds may continue to mature. Systemic herbicides can be applied to the rosettes in early spring or late fall.

NATIVE ALTERNATIVES

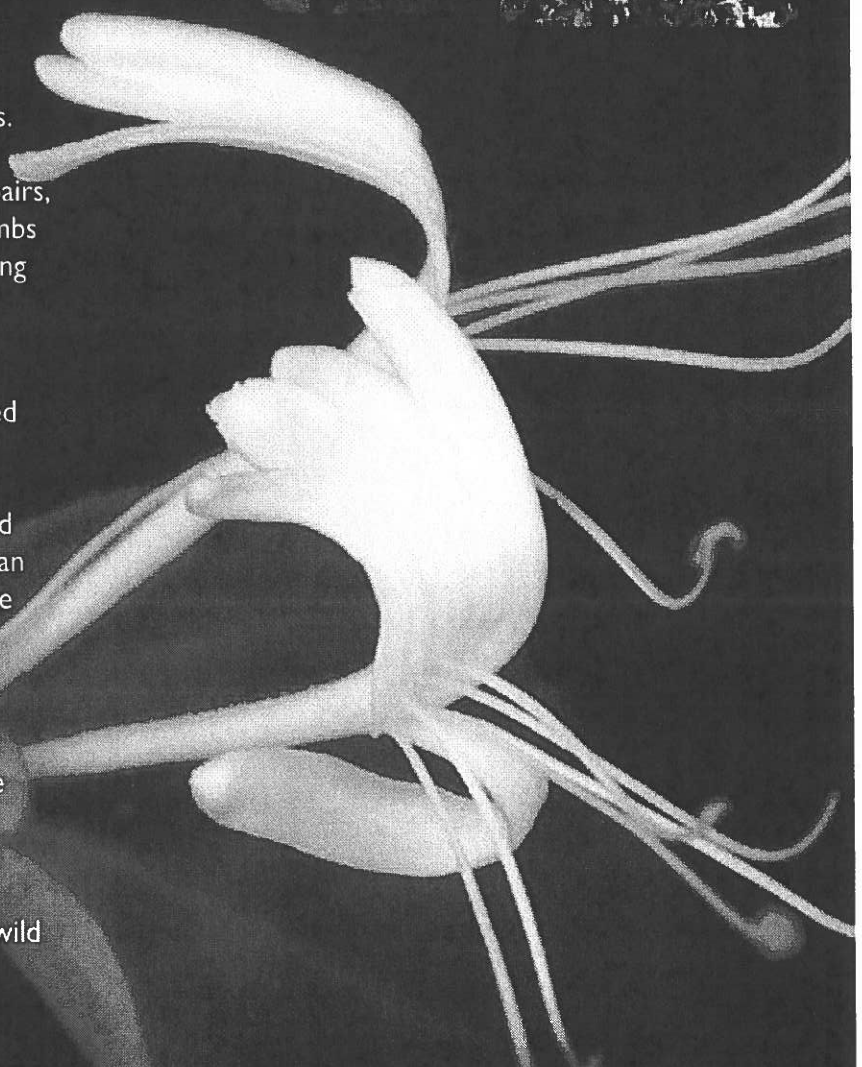
White baneberry (*Actaea pachypoda*), columbine (*Aquilegia canadensis*), blue phlox (*Phlox divaricata*), and black cohosh (*Cimicifuga racemosa*)

WHAT YOU CAN DO TO HELP

Remove invasive plants from your property.

Japanese Honeysuckle

Lonicera japonica



DESCRIPTION

Japanese honeysuckle is a woody semi-evergreen vine with opposite, oval leaves. The flowers grow in pairs, are white to yellow, and very fragrant. Fruits, also in pairs, are purple to black berries. This vine climbs and drapes over native vegetation, forming dense patches.

HABITAT

Japanese honeysuckle thrives in disturbed habitats, such as roadsides, trails, fencerows, abandoned fields, and forest edges. Disturbances, such as logging, road building, floods, and windstorms, create an opportunity for this vine to invade native plant communities.

MANAGEMENT

Burning in combination with systemic herbicide application may be an effective control method. Herbicides can be applied to the leaves when native plants are dormant. Be aware there are native climbing honeysuckles in Ohio, such as wild honeysuckle (*Lonicera dioica*).

NATIVE ALTERNATIVES

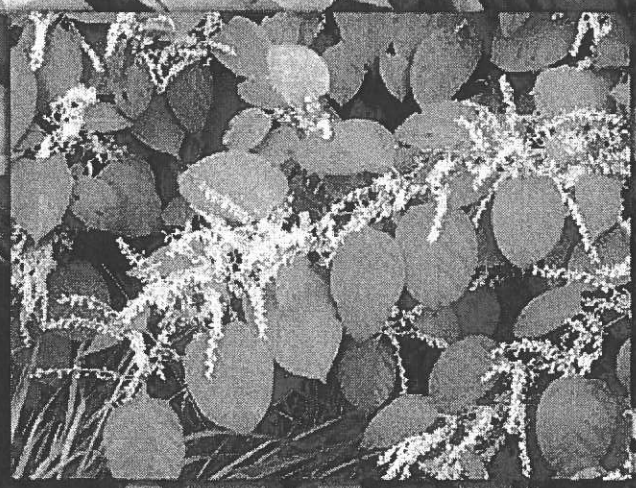
Virginia creeper (*Parthenocissus quinquefolia*), wild honeysuckle (*Lonicera dioica*), and virgin's bower (*Clematis virginiana*)

WHAT YOU CAN DO TO HELP

Spread the word about the threats of invasive plants in Ohio and the benefits provided by native plant communities.

Japanese Knotweed

Polygonum cuspidatum



DESCRIPTION

This shrub-like herb grows up to 10 feet tall. Stems are smooth and the pointed leaves vary from broadly oval to almost triangular. Flowers are greenish-white and very small. The seeds are dispersed by wind. Once established, the plants spread by a system of underground stems reaching 60 feet.

HABITAT

Japanese knotweed can grow in a wide variety of habitats. It is found in open areas, such as roadsides, streambanks, and woodland edges. It spreads quickly and forms dense thickets.

MANAGEMENT

Knotweed is very difficult to control. Leaves may be sprayed or stems cut and treated with systemic herbicide.

NATIVE ALTERNATIVES

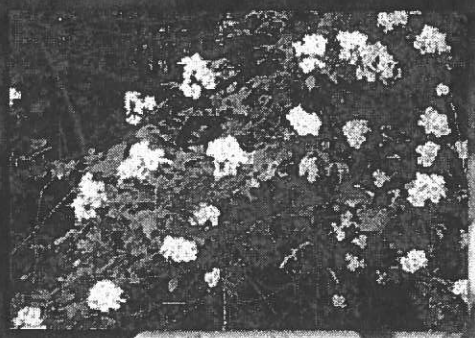
Northern arrowwood (*Viburnum dentatum*), black haw (*Viburnum prunifolium*), dogwoods (*Cornus racemosa, C. amomum*), and chokeberry (*Aronia prunifolia, A. melanocarpa*)

WHAT YOU CAN DO TO HELP

Familiarize yourself with the invasive plants in your area.

Multiflora Rose

Rosa multiflora



DESCRIPTION

Multiflora rose is a dense spreading shrub with widely arching canes and stiff, curved thorns. This shrub grows up to 15 feet tall with alternate, compound leaves of 7-9 oval leaflets. Multiflora rose has numerous white flowers that produce clusters of small, red fruits. The fruits (called hips) are eaten by birds and mammals which help disperse the seeds. An individual plant can produce up to 500,000 seeds per year.

HABITAT

Multiflora rose was formerly planted as a "living fence" to control livestock, stabilize soil, and create barriers for roadways. It also has been planted as a wildlife cover and food source. This rose occurs in a wide range of habitats throughout Ohio, but prefers sunny areas with well-drained soils.

MANAGEMENT

A long-term management program of mowing or cutting and treating stems with systemic herbicide several times during the growing season is recommended. Digging or hand-pulling small shrubs also may be effective.

NATIVE ALTERNATIVES

Pasture rose (*Rosa carolina*), swamp rose (*Rosa palustris*), steeple bush (*Spiraea tomentosa*), meadowsweet (*Spiraea alba*), and prairie rose (*Rosa setigera*)

WHAT YOU CAN DO TO HELP

Volunteer with your local land managing agency (parks, nature preserves, etc.).

Purple Loosestrife

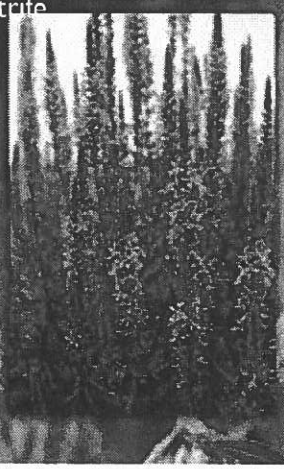
Lythrum salicaria

DESCRIPTION

This popular garden flower grows 3-7 feet tall and has a dense bushy growth of one to 50 stems. Long spikes of flowers are purple to magenta, and linear-shaped leaves grow opposite along the square stems. Purple loosestrife spreads aggressively by underground stems (*rhizomes*) and can produce as much as a million seeds per plant. *Lythrum virgatum*, a popular horticultural variety, was initially thought to be unable to produce seeds. Research has shown that it can cross-pollinate with *Lythrum salicaria* and produce viable seeds of invasive loosestrife.

HABITAT

Purple loosestrife grows in a variety of wetland habitats including marshes, river banks, ditches, wet meadows, and edges of water bodies. Loosestrife can invade both natural and disturbed wetlands, replacing native vegetation with nearly pure stands of loosestrife.



MANAGEMENT

Small stands of purple loosestrife can be controlled by hand-pulling, digging, or applying systemic herbicides to the foliage. Herbicides may be used to control large populations. Biological controls using beetles and weevils are being used by some agencies in Ohio and other states.

NATIVE ALTERNATIVES

Spiked blazing-star (*Liatris spicata*), blue lobelia (*Lobelia siphilitica*), cardinal flower (*Lobelia cardinalis*), rose mallow (*Hibiscus moscheutos*), and blue flag iris (*Iris versicolor*)

WHAT YOU CAN DO TO HELP

Encourage nurseries to avoid invasive non-native plants and stock alternative native or non-invasive plant species.

Reed Canary Grass

Phalaris arundinacea

DESCRIPTION

This large, coarse grass reaches 2-5 feet tall. The hairless stems gradually taper to flat and rough leaf blades 3-10 inches long. The flowers occur in dense clusters and are green to purple, changing to beige and becoming more open over time. The plant spreads aggressively both by seed and by forming a thick system of underground stems (*rhizomes*).

HABITAT

This grass occurs in wetlands, such as marshes, wet prairies, meadows, fens, stream banks, and seasonally wet areas throughout Ohio. Reed canary grass has been planted widely for forage and erosion control. It is possible that both native and non-native strains occur together, but introduced strains are thought to be more invasive. It may be difficult to tell the two apart.

MANAGEMENT

A combination of burning or mowing with systemic herbicides is the best method of control; grass-specific herbicides applied with wick applicators are recommended in areas where native plants occur.

NATIVE ALTERNATIVES

Prairie cord grass (*Spartina pectinata*), Canada bluejoint (*Calamagrostis canadensis*), and Indian grass (*Sorghastrum nutans*)

WHAT YOU CAN DO TO HELP

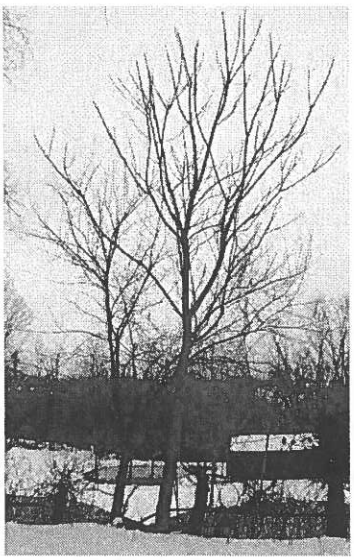
Start early! Early detection and control makes eradication efforts much easier.

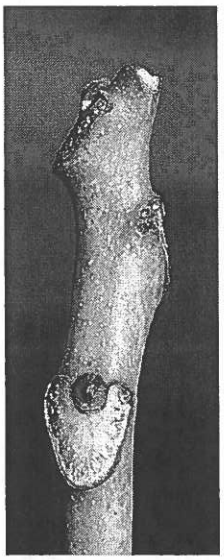
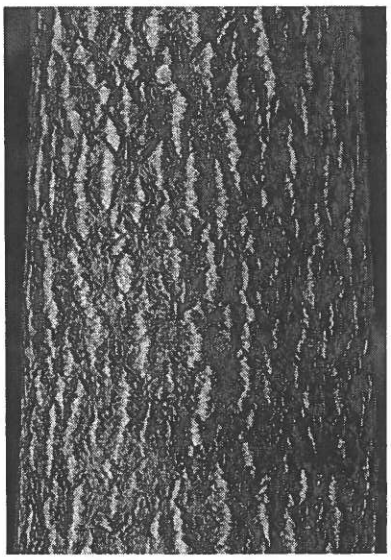
Invasive Plants of Concern in Ohio

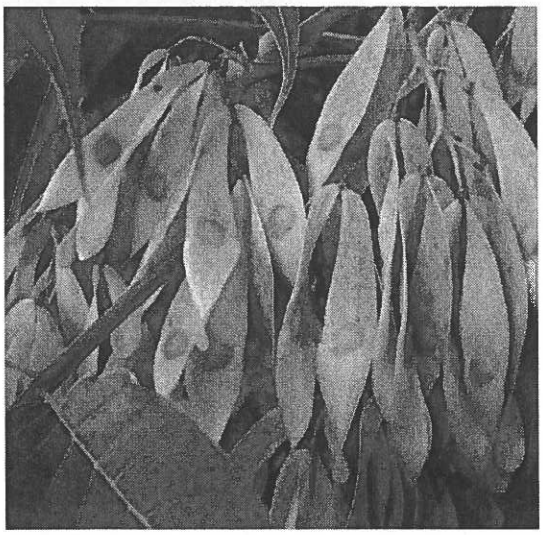
Tree-of-heaven (*Ailanthus altissima*)

Tree-of-heaven is a fast-growing tree that was introduced for ornamental purposes. It is often found in disturbed woodlands, fencerows, old fields, pastures, utility right-of-ways, as well as in unmanaged green spaces in urban areas. Tree-of-heaven often forms thickets and sprouts prolifically from the roots and from cut stumps.

Tree-of-heaven is characterized by very stout twigs which are distinctive against the winter sky. When in leaf, the tree has a palm-like appearance. It has long compound leaves with 11 to 41 leaflets along the petiole. Each leaflet has one or more thumbs, or lobes, at the base. Small glandular teeth are present at the tip of each lobe on the underside of the leaflet. The bark is smooth and gray with vertical fissures that become smoother with age. In late summer female trees produce winged seeds which turn yellow-orange to brown in the fall. All parts of tree-of-heaven emit a distinctive odor when crushed, which has been likened to cat urine or rancid peanuts.





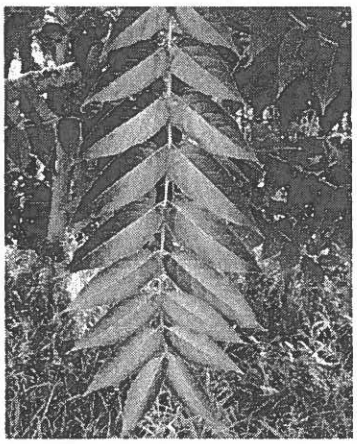
Top Row, L to R: Tree-of-heaven in winter; long compound leaf, stout twig; smooth bark with vertical fissures. **Bottom Row, L to R:** A tree-of-heaven growing in foundation of a building; winged seeds of female tree-of-heaver

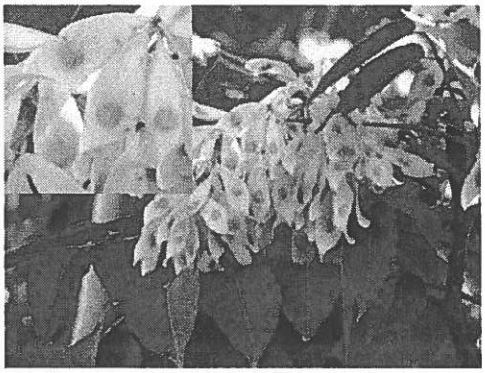
New Invasive Plants of the Midwest Fact Sheet

TREE OF HEAVEN

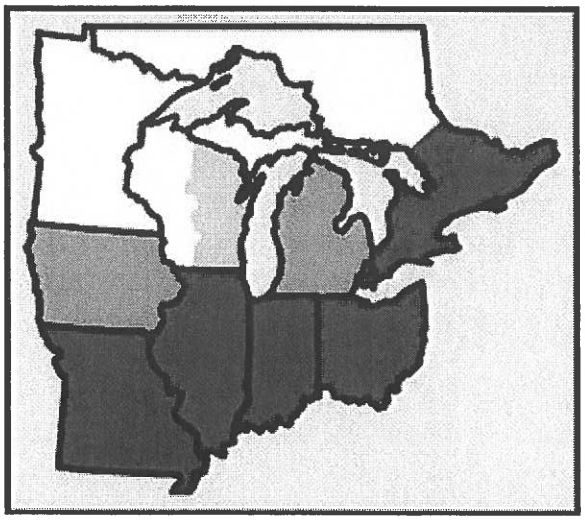
Ailanthus altissima

Description: Tree of heaven is a deciduous tree that grows to 80 feet. The stems are smooth with pale gray bark. Leaves are alternate, 1-4 feet long, and compound with 11-25 leaflets with 1 or more glandular teeth near the leaf base. Flowers are yellow-green and located near the branch tips with male and female flowers on separate trees. Its seeds are in twisted flat 'wings' borne in clusters. All parts of this tree have a very strong odor.





Native range: Central China (http://www.nps.gov/plants/alien/fact/aial1.htm)



Ecological threat: This plant threatens woodland edges and forest openings. Tree-of-heaven is a prolific seed producer, grows rapidly, and can overrun native vegetation. Once established, it can quickly take over a site and form an impenetrable thicket. Ailanthus trees also produces toxins that prevent the establishment of other plant species. The root system is aggressive enough to cause damage to sewers and foundations.

Current North American Range: Tree of heaven is currently very common throughout Iowa, Missouri, Illinois, Indiana, Ohio, and Michigan. It is also known to be in eastern Wisconsin and southern Ontario.

Current Midwest general distribution, including southern Ontario ☐ Not Known ▒ Isolated ▓ Locally Abundant ■ Widespread

Early Detection and Rapid Response Can Help Stop the Spread!

MIPN.org
Midwest Invasive Plant Network

TREE OF HEAVEN, *Ailanthus altissima*

MANAGEMENT OPTIONS: (http://www.nps.gov/plants/alien/fact/aial1.htm)

Elimination of Ailanthus requires diligence, due to its abundant seed production, high seed germination rate, and vegetative reproduction. Followup monitoring and treatment when needed should be an integral part of any serious ailanthus management program. Regardless of method selected, treated areas should be rechecked one or more times a year and any new suckers or seedlings treated (cut, sprayed or pulled) as soon as possible, especially before they are able to rebuild root reserves. Establishing a thick cover of trees (preferably native, and non-invasive) or grass sod will help shade out and discourage establishment of ailanthus seedlings. Targeting large female trees for control will help reduce spread of ailanthus by seed.

Mechanical methods

Young seedlings may be pulled or dug up, preferably when soil is moist. Care must be taken to remove the entire plant including all roots and fragments, as these will almost certainly regrow. Root suckers appear similar to seedlings, but would be connected to a pre-existing lateral root, and would be nearly impossible to remove effectively. Cutting alone is usually counter-productive because ailanthus responds by producing large numbers of stump sprouts and root suckers. However, for small infestations, repeated cutting of sprouts over time can exhaust the plants reserves and may be successful if continued for many years or where heavy shade exists. If possible, the initial cutting should be in early summer in order to impact the tree when its root reserves are lowest. Cutting large seed producing female trees would at least temporarily reduce spread by this method.

Chemical methods

Foliar sprays applied when trees are in full leaf are very effective, and should be the method of choice where ailanthus size and distribution allow effective spray coverage of all foliage without unacceptable contact with nearby desirable vegetation or applicator. Where ailanthus is in association with other exotic weed species, as is often the case, foliar spray allows treatment of the entire area at one time. Limitations of the method are the seasonal time frame, the need to transport a larger, more diluted volume of spray material, and the fact that rapid growing ailanthus are often out of effective reach.

Basal bark application is one of the easiest methods and does not require any cutting. It works best during late winter/early spring and in summer. The base of the tree stem must be free of snow, ice, or water on the bark from recent rainfall, though precipitation following application is inconsequential. Late winter/early spring (February 15-April 15, Mid-Atlantic) is generally the most productive time, since vegetation near the base of the trees is usually absent or leafless. Late spring and early summer applications (April 15-June 1, Mid-Atlantic), when plant fluids are moving upwards to support new growth, are questionable. Application during the summer (June 1-September 15, Mid-Atlantic) works very well as long as vegetation is not a hindrance, and allows lower concentrations of herbicide to be used. Fall to mid-winter applications (October-January) have given poor results.

The hack-and-squirt or injection method is very effective and minimizes sprouting and suckering when applied during the summer. Root suckering will be an increasing problem in the fall, winter and spring.

The cut stump method is useful in areas where the trees need to be removed from the site and will be cut as part of the process. While situations exist that dictate this method over the others given above, felling trees is usually less effective in killing the root system, slower, more labor intensive, and more hazardous to personnel than other methods. This method is likely to be most successful during the growing season, with diminishing success through the early fall.

For more information on control and management of this species, please visit the following Web sites:
www.usda.plants.gov, www.nps.gov/plants/alien/factmain.htm, tncweeds.ucdavis.edu/comtrol.html, dnr.wi.gov/invasives/plants.htm, www.invasivespeciesinfo.gov/plants/main.shtml, http://www.nps.gov/plants/alien/fact/pope1.htm

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